

REMARKS

Claims 1-33 are pending in the present application. In the Office Action mailed January 9, 2007, the Examiner rejected claims 1-33 under 35 U.S.C. §103(a) as being unpatentable over Geng et al. (US Pub. 2001/0035399).

Claims 9 and 10 have been amended to more clearly define that called for therein.

In setting forth the rejection under §103, the Examiner grouped all independent claims (1, 14, 23, and 29) together and did not address the particular and unique elements of every claim. As to the twenty-nine dependent claims, the Examiner simply stated that they collectively call “for stick welding and for various operating parameters,” but that such subject matter “do[es] not patentably distinguish over the prior art.” *Office Action*, 1/09/07, pg. 2. Applicant believes that the rejection of claims 1-33 as set forth by the Examiner is deficient and unsustainable on its face since it does not meet the requirements for a *prima facie* case of obviousness. MPEP § 2143. That is, without even considering the substance of the cited art, Applicant believes that the present rejection is unsustainable because the Examiner did not show that the art of record teaches or suggests each and every element of every claim and did not present a motivation for modifying Geng et al. to satisfy any allegedly missing elements from each claim. Without so much as even a mention of all the claim elements, Applicant is left to guess at what the Examiner thinks about the cited art with respect to the claimed invention. Such is not a proper, sustainable rejection, and for this reason alone Applicant respectfully requests withdrawal of the present rejection under §103 of claims 1-33.

As for what the Examiner did state regarding the claims, Applicant believes that the Examiner has confused constant current (CC) and constant voltage (CV) operational modes with a “V/A output,” as that term is used in the claims. For example, claim 1 recites “selecting a startup V/A output greater than the desired V/A output.” In characterizing Geng et al., the Examiner asserted (incorrectly) that system therein uses a “starting arc current” which is “higher than the current during the constant voltage welding mode.” *Office Action*, 01/09/07, pgs. 2-3. The Examiner then stated that “this higher current during the start phase ... constitutes a ‘greater’ or ‘boosted’ V/A characteristic simply because the starting characteristic has at least one parameter (current) that is greater than the welding characteristic. . . .” *Id.* (emphasis added). Applicant notes that the Examiner is mistaken in both (1) asserting that Geng et al. teaches a higher starting current and (2) and that claims 1-33 are unpatentable over Geng et al.

Geng et al. does not teach an arc starting current that is higher than the welding current. Geng et al. labeled Figs. 1-3 as prior art and shows testing results of arc current during an

unstable starting period using prior art arc starting methods. See *Geng et al.*, ¶¶ 29-31. Based on the discussion of Figs. 1-3, Geng et al. discusses reducing such instability during the arc initiation period using a constant current power source. See *Geng et al.*, ¶ 32. Geng et al. discloses “rapidly increasing the arc current and maintaining it substantially stable during the arc initiation period therefore uses an on-line, dynamically switched CC/CV power supply that initiates the arc with the power supply in the CC mode and then switches on-line to CV operation once the stable arcing period is attained.” *Geng et al.*, ¶ 33. Fig. 4 of Geng et al. “shows that the use of a CC power source allows the welding system to attain the average current value needed for stable arc operation.” *Geng et al.*, ¶ 32. Fig. 4 does not show a startup current greater than a desired current.

Fig. 7, reference (b) of Geng et al., depicts the arc current from an open circuit at t_0 through a period after converting to CV through soft-switching at t_3 . Once the arc is initiated at time t_1 , arc current remains relatively constant throughout the arc starting period, T_s . Geng et al. shows fluctuations of the current after time t_2 ; however, such fluctuations are shown to fluctuate above or below the current level generated during the arc starting period. Contrary to the Examiner’s assertion, Geng et al. does not teach “that the starting arc current should be higher than the current during constant voltage welding mode.” *Office Action*, 01/09/07, pgs. 2-3. Geng et al. notes that prior art arc starting systems exhibited a lower starting current (Fig. 3). See *Geng et al.*, ¶ 32. Thus, the system of Geng et al. is directed to increasing starting current to match welding current (Fig. 4), not increasing starting current to be greater than welding current. In fact, it does not appear that Geng et al. teaches any specific voltage or current parameter which is specifically selected to be higher during an arc starting period than during an operating period.

Claim 1 calls for, in part, determining at least one of a plurality of parameters of a welding-type device including a desired voltage/amperage (V/A) output for a welding-type process and selecting a startup V/A output greater than the desired V/A output based on the desired V/A output. As explained above, Geng et al. fails to teach or suggest selecting a startup current in one welding mode to be higher than the current in another welding mode. Accordingly, Geng et al. fails to teach or suggest selecting a startup V/A output greater than a desired V/A output. Further, Geng et al. fails to teach or suggest selecting a startup V/A output to be greater than a desired V/A output based on the desired V/A output.

Claim 14 calls for, in part, selection of a delivered V/A characteristic above a desired V/A characteristic and the start of a welding-type process according to the hot start parameters including tapering the delivered V/A characteristic to the desired V/A characteristic over the taper

period. As stated above, Geng et al. discloses “rapidly increasing the arc current and maintaining it substantially stable during the arc initiation period” *Geng et al.*, ¶ 33. Geng et al. does not explicitly discuss a taper period during the arc initiation period; however, the rapidly increasing current may taper however briefly during this period. Even if such a brief taper may be construed to be a taper period, delivered current during this period is not tapered to a lower current over the taper period.

Claim 23 calls for, in part, a controller configured to select a startup V/A output greater than a desired operational V/A output and to reduce the startup V/A output to the desired operational V/A output over a hot start period. Claim 29 calls for, in part, means for boosting a starting V/A output above the user selected V/A output, means for selecting a time period based upon the user selected V/A output, and means for delivering a variable hot start by providing the starting V/A output to an output of the welding-type apparatus and then reducing the starting V/A output to the user selected V/A output over the time period. As explained above, Geng et al. fails to teach or suggest reducing a starting current to a desired or user selected current during the arc initiation period.

For a least the reasons set forth above, Applicant believes that that which is called for in claims 1-33 is not shown, disclosed, taught, or suggested in the art of record. As such, Applicant believes claims 1-33 are patentably distinct from the art of record and requests withdrawal of the rejections thereof.

Applicant also believes that the dependent claims, besides being dependent on what are believed to be otherwise allowable claims, recite elements not found in Geng et al. and deserve additional mention. For example, claim 3 calls for “selecting the taper period to be substantially equivalent to the selected duration of the hot start period.” Geng et al. fails to teach or suggest a taper period substantially equivalent to the CC arc starting period (time t_1 to t_2). Claims 5 and 6 recite particular durations of the taper period which are not taught or suggested by Geng et al. Claims 7, 9, and 10 recite particular proportions between the desired and startup V/A outputs which are not taught or suggested by Geng et al. Other and/or similar elements are recited in the remaining dependent claims. Therefore, it is clear that the dependent claims are further patentably distinguishable over the art of record.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-33.

Applicant appreciates the Examiner's consideration of these Amendments and Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,

/Stephen J. Gardner/

¹ Stephen J. Gardner
Registration No. 59,057
Phone 262-268-8100 ext. 17
sjg@zpspatents.com

Dated: April 9, 2007
Attorney Docket No.: ITW7510.087

P.O. ADDRESS:
Ziolkowski Patent Solutions Group, SC
136 South Wisconsin Street
Port Washington, WI 53074
262-268-8100

Respectfully submitted,

/Kent L. Baker/

Kent L. Baker
Registration No. 52,584
Phone 262-268-8100 ext. 12
klb@zpspatents.com

¹The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-2623. Should no proper payment be enclosed herewith, as by credit card authorization being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2623. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extensions under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-2623. Please consider this a general authorization to charge any fee that is due in this case, if not otherwise timely paid, to Deposit Account No. 50-2623.